

No. 747,596.

PATENTED DEC. 22, 1903.

P. B. DELANY.
APPARATUS FOR REMOVING ICE FROM TRACK OR CONDUCTOR RAILS
OF RAILROADS.

APPLICATION FILED MAR. 2, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

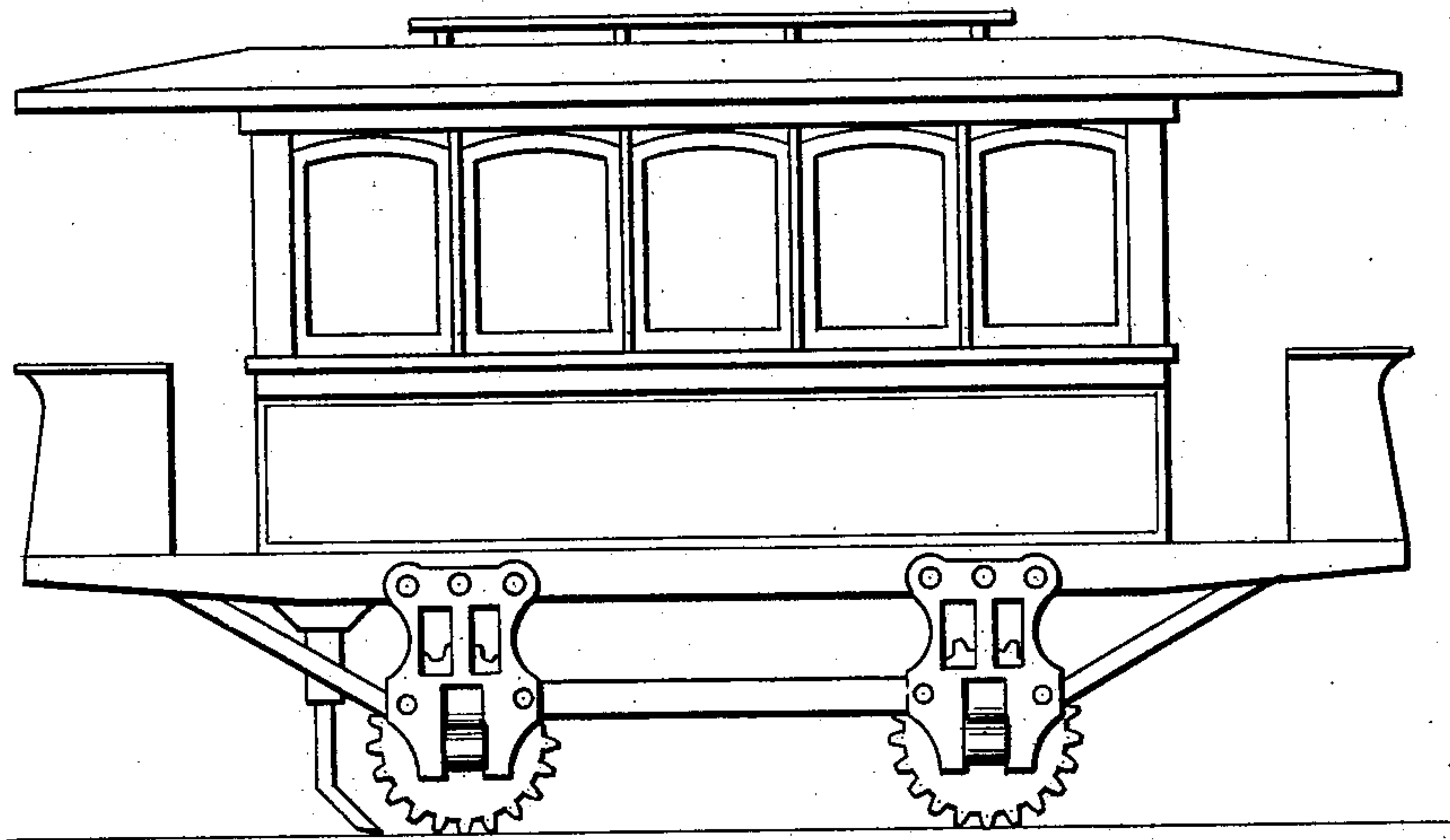
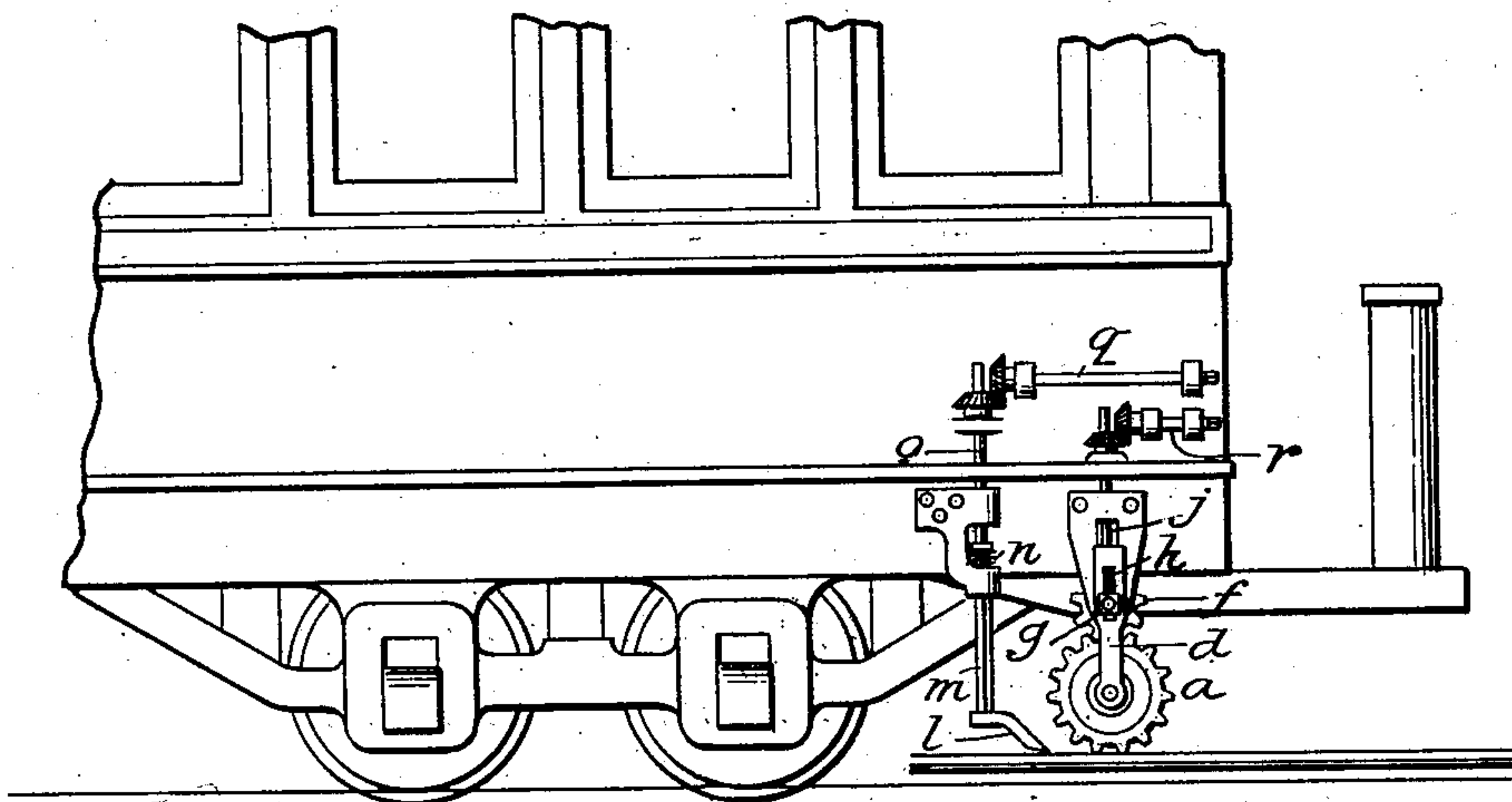


Fig. 2.



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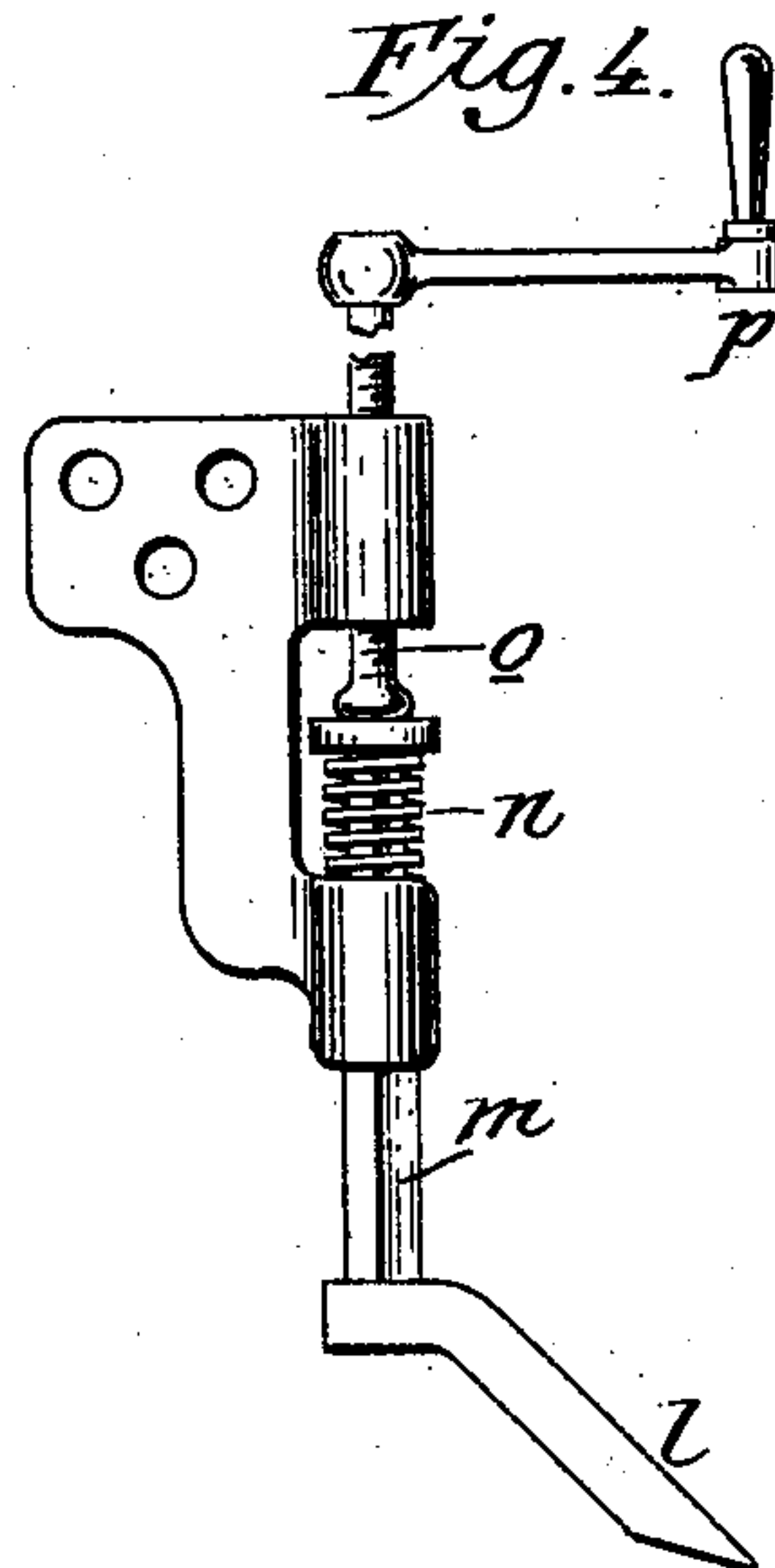
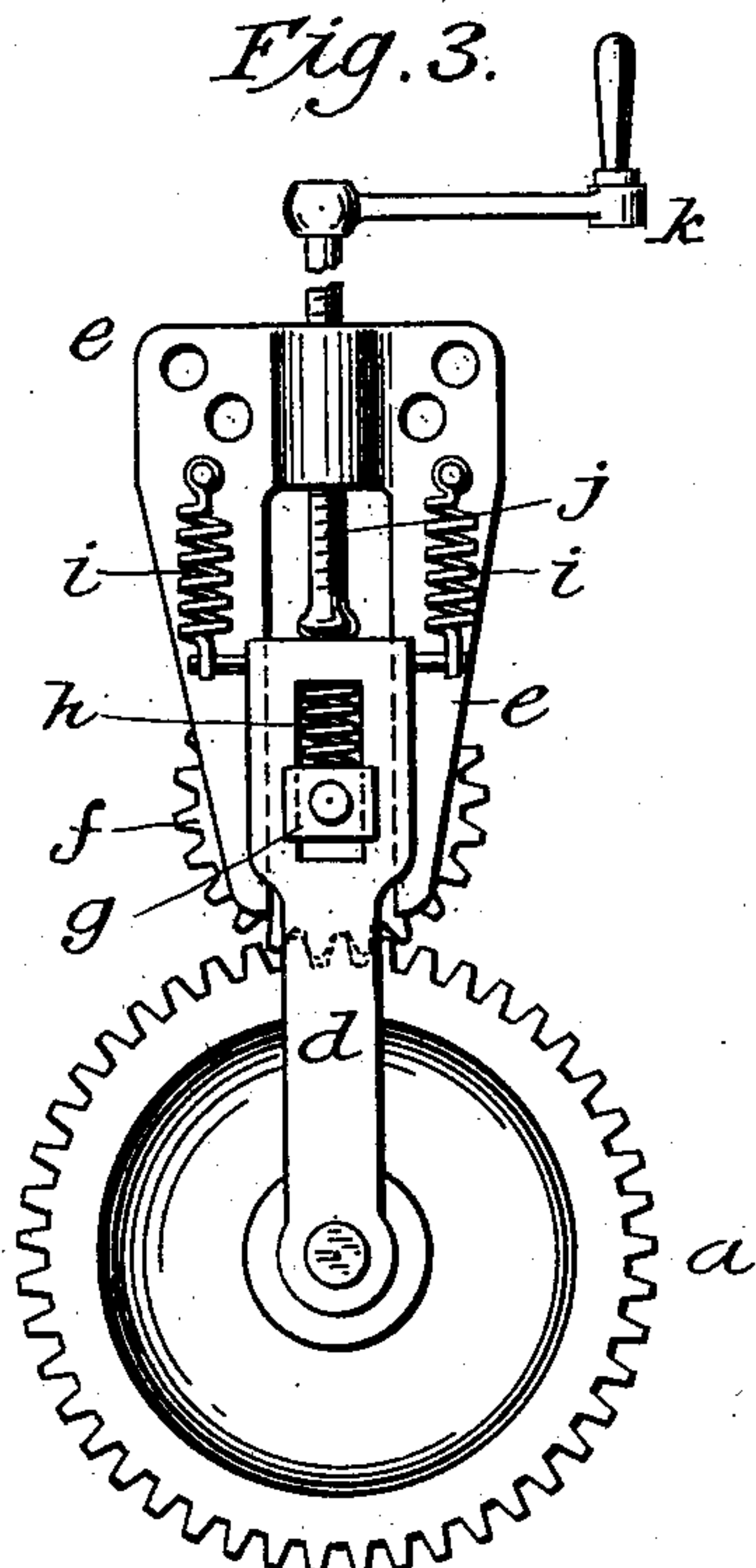


Fig. 5.

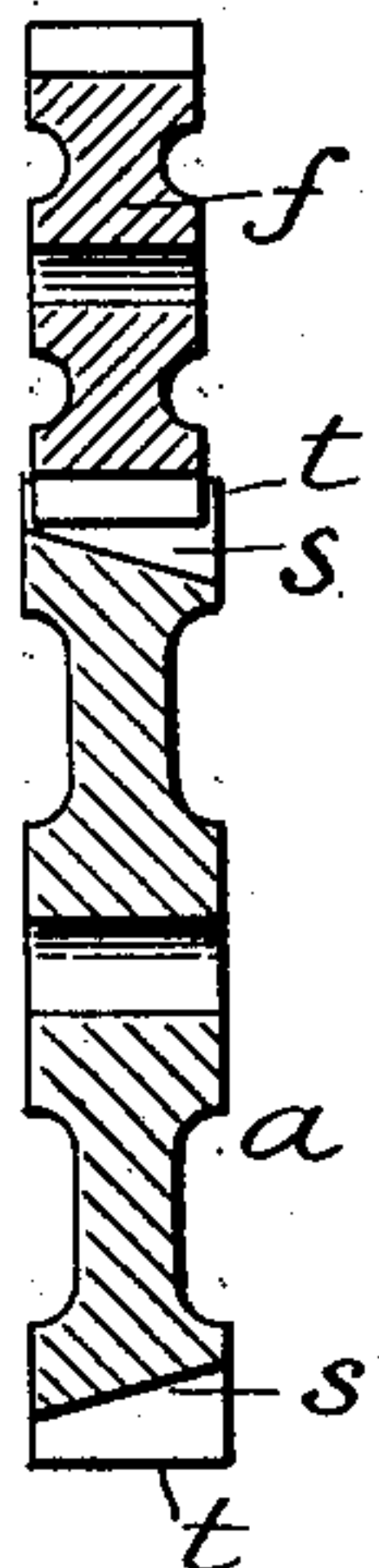


Fig. 6.

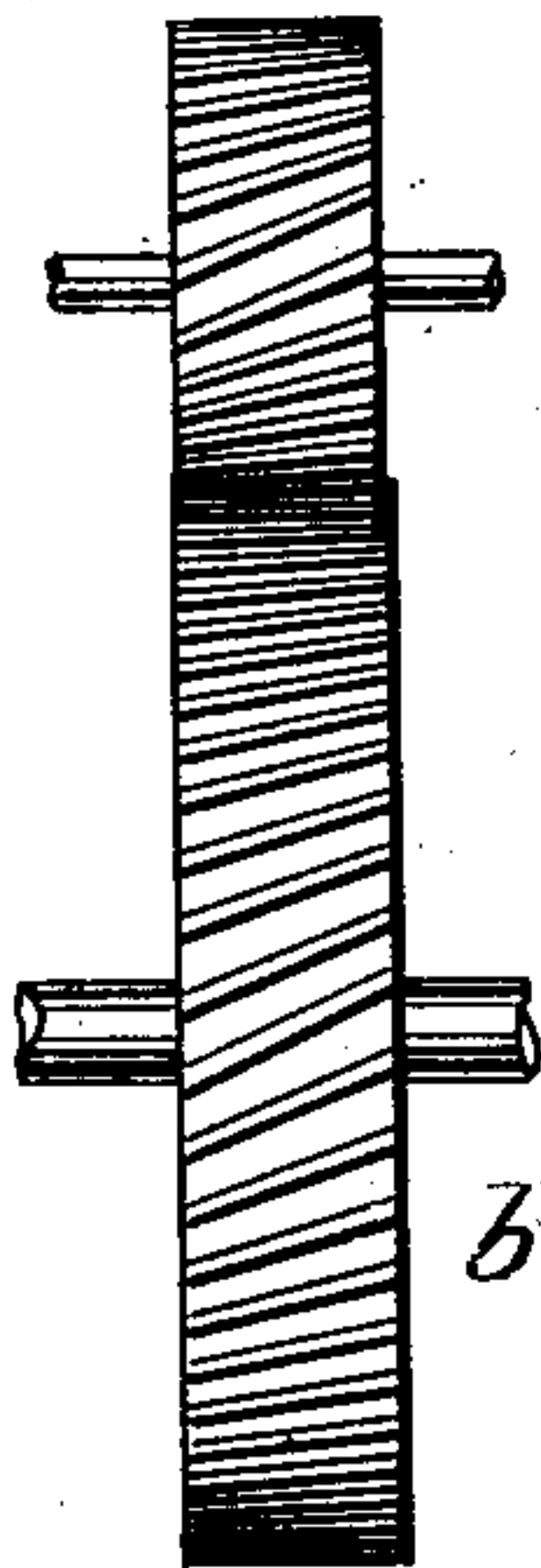
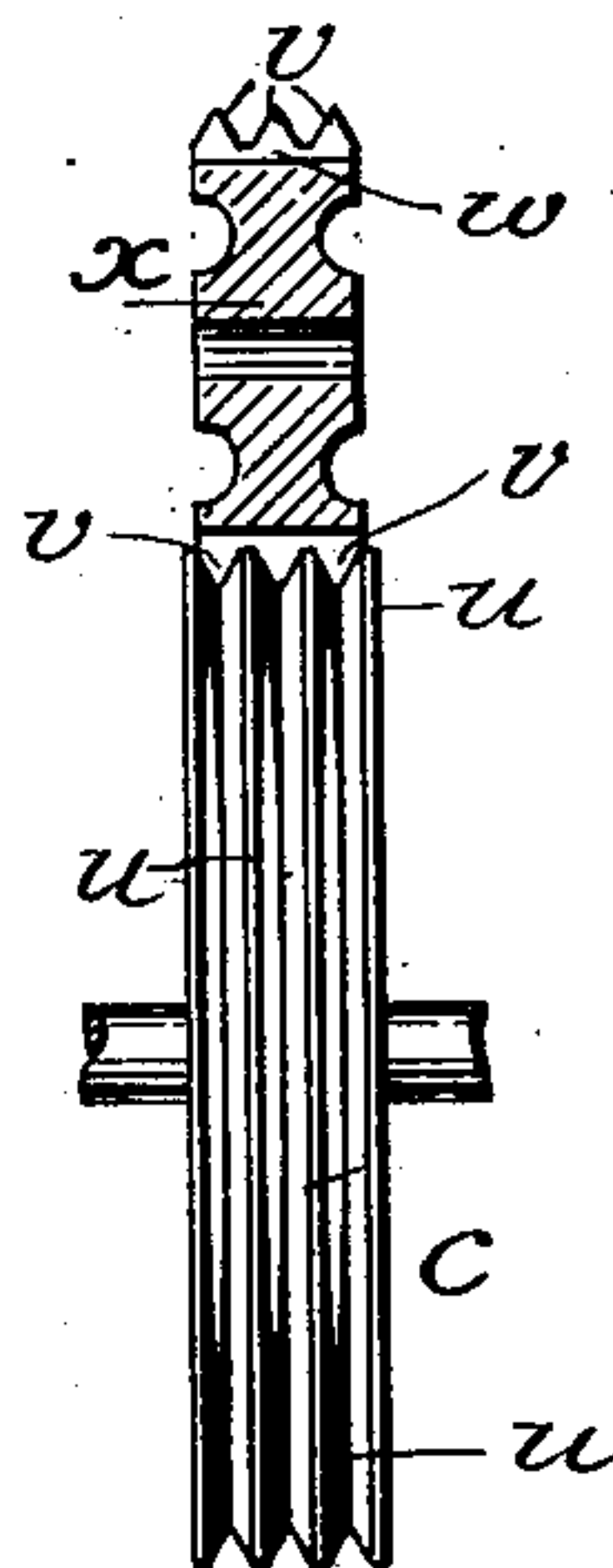


Fig. 7.



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UNITED STATES PATENT OFFICE.

PATRICK B. DELANY, OF SOUTH ORANGE, NEW JERSEY.

APPARATUS FOR REMOVING ICE FROM TRACK OR CONDUCTOR RAILS OF RAILROADS.

SPECIFICATION forming part of Letters Patent No. 747,596, dated December 22, 1903.

Application filed March 2, 1903. Serial No. 145,804. (No model.)

To all whom it may concern:

Be it known that I, PATRICK B. DELANY, a citizen of the United States, residing at South Orange, in the county of Essex, State of New Jersey, have invented certain new and useful Improvements in Apparatus for Removing Ice from Track or Conductor Rails of Railroads, of which the following is a specification.

This invention comprises a wheel with a roughened, toothed, corrugated, channeled, or notched periphery adapted to run upon the rail from which the ice is to be removed and in conjunction with which I preferably employ a brush or scraper for removing the ice that is crushed or broken from the face of the rail by the action of the wheel. In conjunction with such a wheel I employ a device for removing from its surface or from the depressions or channels therein ice that may be packed or compressed therein. A track-clearing car may be equipped with carrying-wheels of this kind and with a supplemental wheel to run upon a third rail in the case of electric railroads of that character, or such devices may be applied to the ordinary cars traversing the track, and there may be one for each track-rail and one for the third rail, and in such case they are preferably so mounted as to be raised out of operation or depressed into operation, as occasion may require.

In the accompanying drawings, Figure 1 shows a car equipped with carrying-wheels of the character described; Fig. 2, an ordinary traffic-car with usual wheels, but showing in this instance an ice-clearing apparatus acting upon a third or conductor rail. Fig. 3 is a detail elevation of the vertically-adjustable ice-removing wheel; Fig. 4, a similar view of a vertically-adjustable scraper. Fig. 5 shows in section a toothed wheel, the bottoms of the recesses in which are inclined, and a clearing-wheel cooperating therewith. Fig. 6 shows a wheel with the corrugations or peripheral channels arranged obliquely to the axis, and Fig. 7 shows a wheel with circumferential annular channels that form ribs upon the periphery.

In Fig. 3 a wheel for acting upon the rail is shown, whether it be a track-rail or a conductor-rail, and it may be either the wheel *a* of Fig. 5, *b* of Fig. 6, *c* of Fig. 7, or any wheel

with an appropriately roughened, corrugated, or notched periphery. It is shown as journaled in a frame *d*, movable vertically in or on a frame *e*, adapted to be attached to a car, as shown in Fig. 2, or otherwise. The wheel *f* for clearing the notches or depressions of the lower wheel has its bearings in blocks *g*, movable vertically on the frame *d* and normally pressed into engagement with the lower wheel by a spring *h*. The frame *d* is acted upon by springs *i i*, the reaction of which tends to elevate the frame and wheels. The frame may, however, be forced downwardly to press the ice-breaking wheel upon the track by means of a screw-bolt *j*, bearing upon the head or upper face of the frame, working in a threaded boss on the frame *e* and to which is applied a key or crank *k*. A scraper *l* to follow the wheel and scrape or push the broken ice from the rail is shown in Fig. 4 and is carried by a vertical movable rod *m*, to which is applied a spring *n*, the reaction of which tends to lift the scraper. It may, however, be forced downwardly by means of a screw-bolt *o* and a key or handle *p*.

In Fig. 2 the rotation of the bolts *j o* is effected by bevel-gears and counter-shafts *q r*, the ends of which are squared to suit keys or cranks, as is apparent.

In Fig. 5 the bottoms of the recesses *s* between the teeth *t* are inclined toward the axis, so that the pressure of the intermeshing teeth of the wheel *f* acting upon the ice packed in the recesses *s* will force it laterally therefrom. In this figure, as in Fig. 3, the teeth of both wheels may be considered to be parallel with the axes. In Fig. 6 the teeth of the wheels are oblique to their respective axes. The bottoms of the spaces between the teeth may, however, be the same as shown in Fig. 5.

In Fig. 7 the ice crushing or breaking wheel is formed with circumferential peripheral ribs *u*, in the spaces between which work the points *v*, formed upon the edges of the teeth *w* of the small wheel *x*.

The wheel traveling upon the rail serves to break up the ice upon the surface thereof and detach or loosen it, and the following scraper clears it away.

So far as I am aware an arrangement of

this general character having the mode of operation described is new.

Where peripheral grooves are employed, as in Fig. 7, instead of a groove-cleaning wheel
5 a scraper may be used to clear the grooves of accumulations of ice. Such a scraper may be a metal plate with three tongues, one for each groove, or it may be a solid metal plate corrugated to conform to the grooves, or the
10 scraper may be of any appropriate and well-known character adapted to remove the ice from the grooves.

I claim as my invention—

1. An apparatus for removing ice from the
15 track or conductor rails of a railroad comprising a wheel having peripheral recesses adapted to run upon a rail, and means for dislodging ice that becomes packed in the recesses.

20 2. An apparatus for removing ice from the track or conductor rails of a railroad comprising a wheel with peripheral projections or teeth adapted to run upon the track, and a second wheel having projections intermeshing with recesses in the first wheel, to dis-
25 lodge ice therefrom.

3. An apparatus for removing ice from the track or conductor rails of a railroad com-

prising a wheel having peripheral teeth or projections adapted to run upon the rail, 30 means for at will raising the wheel out of action, or forcing it into contact with the rail, and means for dislodging ice from the peripheral recesses of the wheel.

4. An apparatus for removing ice from the 35 track or conductor rails of a railroad comprising a wheel having transverse teeth, the bottoms of the recesses between which are inclined toward the axis, and a toothed wheel meshing therewith and acting to dislodge ice 40 from the recesses.

5. An apparatus for removing ice from the track or conductor rails of a railroad com-
prising a car traveling upon the track-rail, a wheel having peripheral teeth adapted to 45 bear upon the surface of the rail to break up ice thereupon, and a second toothed wheel meshing with the first one, and yieldingly held in mesh therewith.

In testimony whereof I have hereunto sub- 50 scribed my name.

PATRICK B. DELANY.

Witnesses:

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